Tender Detail - Modification

Template Name:	IMM-OS-OPEN-SINGLEBID		Buyer:	IMM	Tender :	**Defined**
Tender Authorized User Name:			Tender Authorized User Designation:			

Tender Header Term Setup			
* **Tender:**	HAL/SLRDC/IMM/RFI/RFMODEM/01	Tender Creation Date and Time:	12-01-2026 09:17
* **Title:**	OPEN TENDER	Contact Name/Designation/Dept: *	SANJAY KUMAR
* **Email:**	bhaskar.boda@hal-india.com	Stage:	One Stage
Bidder Type(Nationality): *	Both	Remarks if Any:	Refer Tender Document for more details

Tender Fee Details			
Run Line Number: *	01	* Estimated Cost:	0
* Form Fee:	0	* EMD:	0
DD Drawn in Favour of: *	HAL	Validity of Quotation in Days: *	180
* Tender Mode:	1. IMM	* Region:	Accessories Complex -SLRD Hyderabad
Description Of Work: *	Request for Information for RF	* Qualification Criteria:	AS PER RFI
Additional Notes: *	AS PER RFI		

Important Dates			
1. * Tender Closing Date and Time:	27-01-2026 14:00	2. * Cost Open Date and Time:	27-01-2026 14:30

Printed from : https://eproc.hal-india.co.in/HAL

Printed on : 12/01/2026 09:26

Printed by User Name : BODA BHASKAR

Printed by User Designation : Senior Manager (Purchase)

Request for Information (RFI) for RF MODEM module for the Development of Data-link Systems

RFI No: HAL/SLRDC/IMM/RFI/RFMODEM/01

RFI Date: 12.01.2026

RFI Due date: 27.01.2026

STRATEGIC ELECTRONICS RESEARCH & DESIGN CENTRE,

HINDUSTAN AERONAUTICS LIMITED,

HYDERABAD – 500 042

REQUEST FOR INFORMATION (RFI) FOR PROCUREMENT OF RF MODEM MODULE FOR DEVELOPMENT OF DATALINK SYSTEM

1. Hindustan Aeronautics Limited, HAL, Strategic Electronics Research & Design Centre (SLRDC), solicits information from Vendors for supply of RF MODEM module for development of Airborne and Ground based data link systems.

2. This Request for Information (RFI) consists of two parts as indicated below:-
   (a) **Part I:** The first part of the RFI incorporates desired functional requirements and features of proposed module.

   (b) **Part II:** The second part of the RFI lists the technical and general aspects for which detailed information is required from vendors.

PART-I

3. **Introduction:** SLRDC, HAL, Hyderabad is intending to procure RF MODEM Module suitable for integration into Airborne/Ground based Datalink systems and to facilitate rapid system development.
   The proposed RF MODEM module shall support configurable operational parameters, including selectable data rates, forward error correction (FEC) schemes, RF frequency and self-managed ad-hoc networking capabilities. The OEMs shall also be required to extend technical support and integration services to enable effective incorporation of the modules into SLRDC's Datalink system development activities.

4. **Important Functional and Technical Parameters:** The desired functional and technical parameters of RF MODEM Module are placed at **Appendix-A.**

PART-II

5. **Objective:** The objective of this RFI is to seek responses from potential vendors for supply of RF MODEM Module for development of Datalink system.

   Quantity:
   Quantity during the development Phase   : 6 Modules (Approximately)
   Quantity during the production phase   : 200 Modules (approximately) + Spares

6. **Response for RFI:** The vendors are requested to clearly indicate the following in their response:-

   a) **Technical Details**: The vendors are requested to provide technical details of their existing products and provide Para-wise compliance against the technical requirements listed at Appendix-A. Non–availability of information on any of the paragraphs at Appendix A may be commented specifically.

   b) Vendor shall make a complete technical presentation on their capabilities

   c) **Cost Estimate:** Approximate cost estimate for RF MODEM module to be provided. The estimated cost should make consideration of all aspects of supply, integration, testing, warranty, training and support. Other aspects (if any), may be mentioned specifically.

   d) Vendor shall state clearly if the module is already in use or under development.

   e) Vendors are requested to clearly state their ability to customize/modify/upgrade the existing RF MODEM module, as per HAL requirements.

   f) Vendor shall support integration of RF MODEM module with third-party hardware, and application software development.

   g) The enclosed technical details are only tentative in nature and are subject to change and may be considered only as advance information for market exploration. HAL will freeze the technical scope based on response to subject RFI and as deemed necessary at the time of issuing RFQ (Request for Quotation), at HAL's discretion

   h) This document is not intended to form the basis of any decision to finalize the contract and it does not constitute an offer or invitation or solicitation of an offer to review/purchase

   i) Vendors are also requested to confirm a full life cycle product support for the module and indicate the time period for the same. It may include integration issues, spares, and maintenance and component level repairs. Vendor shall support spares & life items for at least for 10 years after delivery.

   j) Firm shall be ISO 9001/ AS9100 certified (latest)

   k) **Warranty:** The Vendors are requested to furnish the duration of warranty for the equipment.

7. **Tentative Delivery Schedule**: Desirable timeline for delivery of RF MODEM module is 3 months from the date of placement of order.

8. **Future Process**: Based on an evaluation of RFI proposals received, HAL will finalize technical requirements and float Request for Quotation (RFQ) at HAL's discretion

9. Vendors are to furnish information sequentially, as per Para numbers for information requested in this document. Additional information, if any, is to be attached with appropriate cross-reference to serial number in this RFI. Each sheet of the RFI response shall be duly signed by authorised signatory.

 Additional literature on the product can also be attached with the response form.

   a) Vendors must fill the form of response as given in **Appendix B**.

   b) The response to this RFI should be forwarded to the following email ids and the same also can be uploaded in HAL-e portal.

      Chief Manager (D)
      Strategic Electronics Research & Design Centre (SLRDC), Communications
      Hindustan Aeronautics Limited
      Hyderabad – 500042
      Tel no: 040-23826279 / 040-23826263
      Fax no: 040-23879570
      Email Ids: kalyanarao.bolleddu@hal-india.co.in
                    jyoti.gupta@hal-india.co.in

   c) Due date for submission of RFI response is **Two weeks** from the date of releasing the RFI to the vendors. A Presentation on the subject may also be sought in case it is felt that certain parameters mentioned in replies to this RFI need further clarification.

   Thanking You,

                                                          Yours faithfully,
                                              For Hindustan Aeronautics Limited,

                                                          Sd/-
                                                   Senior Manager (Purchase)

Restricted Document

Restricted

The functional and technical requirements of RF MODEM module are as given below:

PARAMETER	SPECIFICATION
Frequency Range	**Mandatory**: 225 – 400 MHz **Desirable** : L, S and C band
Throughput	The module shall support over-the-air data rates (throughput) up to 100 Mbps.
Radio architecture	The "**RF MODEM Module**" shall employ Software Defined Radio (SDR) architecture with configurable bandwidth option.
RF Output Power	The module shall deliver a minimum output power of 0.1 W (20 dBm) into a 50-ohm resistive load, with programmable output power control in 1 dB steps.
MANET	The module shall support Mobile Ad-hoc Mesh Networking (MANET) capability for a minimum of 20 nodes, with scalability for additional nodes.
Data Interface	The module shall provide an Ethernet interface with a minimum link speed of 100 Mbps.
Data Encryption	The module shall support AES-256 encryption for data security.
Mode of operation	The module shall support both Time Division Duplex (TDD) and Frequency Division Duplex (FDD) modes and enable TDMA and FDMA-based operations.
Modulations	The module shall support multiple modulation schemes, including BPSK, QPSK, 16-QAM, and/or equivalent schemes, with provision for adaptive modulation and coding based on channel conditions.
FEC	The module shall provide selectable Forward Error Correction (FEC) code rates, including an option to disable FEC.
Sensitivity	The receiver sensitivity shall be near theoretical performance limits for the supported modulation and coding schemes.
Doppler correction	The OEM shall provide the Doppler correction capability of the MODEM
Wireless Channel	The OEM shall provide the information about channel equalization schemes adopted in the MODEM
Bandwidth	Operational bandwidth shall be selectable and/or automatically configurable based on modem configuration.

TRANSEC	It is desirable that module shall have Transmission Security (TRANSEC) features, such as Frequency Hopping (FH), Direct Sequence Spread Spectrum (DSSS), or equivalent proprietary techniques.
Control Interface	The module shall support one or more of the following interfaces: RS-232, SPI, USB, RS-422, or equivalent interfaces
Frequency Stability	The frequency stability shall be ±0.5 ppm or better.
Weight	The module weight shall be less than 500 grams, excluding external accessories.
Power Source	The module shall operate from a DC power supply not exceeding 28 V.
Operating Temperature	The module shall be capable of continuous operation over an environmental temperature range of –40°C to +71°C.
Built-In Storage	It is desirable that module shall have onboard storage capacity
Physical Dimensions	The OEM shall provide detailed specifications for the mechanical dimensions, form factor, and mounting provisions of the module.
Integration support	The OEM shall provide comprehensive support for integration of the module with HAL hardware to enable development of the complete system. • The OEM shall provide full Board Support Package (BSP) support, including drivers and relevant configuration files. • The OEM shall provide test benches, software utilities, and/or other necessary accessories to enable standalone testing and evaluation of the module. • The OEM shall provide well-documented user data I/O, link status monitoring, and configuration of modulation, FEC, bandwidth, and network parameters.
Interface	The module shall provide access to all available interfaces, including RF ports, for external system integration.
Other features	The module may optionally incorporate an integrated GNSS receiver supporting multiple Global Navigation Satellite Systems (GNSS), such as GPS or equivalent constellations.
BIST and POST	The module shall incorporate Built-In Self-Test (BIST) and Power-On Self-Test (POST) capabilities for health monitoring and diagnostics.

INFORMATION PROFORMA

1. **Name of the OEM/ Company/ Firm**

2. **General Details**

SINo	Details	Vendor's Response
1	Brief Company Background?	
2	Expertise available / Product Portfolio	
3	Is the supplier is OEM/Authorized Vendor/ Distributor	
4	Whether the relevant RF MODEM product is readily available with Vendor or to be developed?	
5	If the product is available, delivery timeline and budgetary cost to be provided	
6	Is it a field proven solution or yet to be proved?	
7	Details of Customers, to whom the product is delivered? Necessary documentary evidence to be provided.	
8	Performance feedback of the delivered product, if available to be provided.	
9	Is the product MIL qualified or yet to be qualified?	
10	If the product is yet to be qualified, the approx. Product cost along with qualification cost to be provided.	
11	If the product is already qualified, provide the details of compliance standard	
12	If the product is yet to be customized, the approx. cost of the product along with qualification cost and timelines to be provided.	
13	Duration of Warranty support to be provided	
14	How many years the product can be further supported by vendor?	
15	Provide reliability (MTBF etc) specifications	
16	Any limitations of the product?	

3. <u>**Financial Details:**</u>

    a) Category of Industry (Large / Medium / Small Scale) : _____

    b) Annual Turnover : _____

    c) Number of employees in firm : _____

    d) Details of Manufacturing Infrastructure: _____

4. **Declaration**

  It is certified that the above information is true.

(Authorised Signatory)

General Commercial Terms and conditions

1) **Payment Terms:** In the event of an order, 100% payment will be made within 30 days of receipt and acceptance of items /services at our Stores by RTGS or any other latest Electronic Payment remittance mode. In case any other terms of payment are offered by vendor where any financing cost has to be borne by HAL, HAL reserves to load suitable financing cost as per commercial terms and conditions to the offered price while evaluating the bids for determining the Lowest bidder. In this regard, decision is at the discretion of HAL.

2) **Security Deposit:** The successful vendor shall have to deposit 5% of the value of the order (Only on basic cost excluding taxes & duties, if such details are furnished separately in the bid submitted) as Security Deposit within 15 days of receipt of the purchase order, by demand draft or bank guarantee in a prescribed format of H.A.L from a scheduled bank in India, valid up to 60 days after the completion of contract period/last supply. This Security Deposit will bear no interest and will be returned only after the contract is completed to the entire satisfaction of H.A.L.

3) **Performance Bank Guarantee:** Successful Vendor shall furnish a performance bank guarantee (including e-Bank Guarantee) for a value of 10% of the order value (only on basic cost excluding taxes & duties, if such details are furnished separately in the bid submitted) in the HAL"s standard format valid up to end of the warranty period from a scheduled bank in India or otherwise equivalent amount shall be retained till completion of warranty period and other obligation of Purchase Order / contract. In case of BG, the BG should be sent directly to HAL by the concerned issuing Bank. Also the name and designation of the officer issuing the BG is to be indicated in the Bank guarantee.

4) **Liquidated Damages:** In the event that any supply/services under the PO is delivered later than agreed schedules in the PO/contract, liquidated damages will be payable / deducted from Invoice equal to 0.5% for every week of delay or part thereof on the delayed portion of the order subject to a maximum of 10% of the value of the delayed part of the order. The LD amount will be calculated excluding taxation element, provided the vendor has given price break-up i.e. basic price and applicable taxes separately.

5) **Integrity Pact**: Bidder shall submit duly signed Integrity Pact in original to IMM Department - SLRDC, strictly as per the format (without any deviation).